



THE MONADNOCK COMPANY 18301 ARENTH AVENUE CITY OF INDUSTRY, CALIFORNIA



DECEMBER 1999

SEMIANNUAL GROUNDWATER MONITORING REPORT FOR AUGUST 1999

THE MONADNOCK COMPANY 18301 ARENTH AVENUE CITY OF INDUSTRY, CALIFORNIA

December 1999

Prepared by:

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EXECUTIVE SUMMARY

During the August 1999 semiannual monitoring event at the Monadnock site, water levels were measured and groundwater samples were collected in seven of the eight monitoring wells. Well MW-1 was not measured or sampled because the well casing was damaged during onsite construction activities. Groundwater samples were analyzed for VOCs, chromium, cadmium, and cyanide.

The results of the August 1999 monitoring event indicate that the water table is currently at the lowest level historically recorded at the site. Potentiometric surface contours continue to demonstrate a west-southwesterly direction of groundwater flow at an average horizontal hydraulic gradient that is slightly steeper than observed during previous monitoring events (about 0.009). A slight downward vertical hydraulic gradient exists, similar to previous monitoring events.

The August 1999 analytical results indicate that the shallow plume of VOC-impacted groundwater beneath the site is oriented in a southwesterly direction. The plume appears to be limited in lateral extent (crossgradient) and extends offsite. The primary VOCs in the plume consist of trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), and tetrachloroethene (PCE).

Historical VOC concentration trends indicate that VOC levels onsite have declined substantially since monitoring began in July 1986. Concentrations onsite remained generally stable during operation of the groundwater remediation system from 1995 to 1998, but in February 1999 declined to the lowest levels historically recorded since shutdown of the system in June 1998. Concentrations during the current August 1999 monitoring event indicate that concentrations have increased to the levels previously observed in Fall 1998, but still remain below the levels observed prior to system shutdown. VOC concentrations in offsite well MW-12 have fluctuated appreciably and are currently near the lower end of the historical range.

Chromium and cyanide concentrations have historically exceeded Maximum Contaminant Levels (MCLs), primarily in well MW-2, but are currently below MCLs.

1.0 INTRODUCTION

This report presents the results for the August 1999 semiannual groundwater monitoring event at the Monadnock Company (Monadnock) facility (Figure 1), conducted by TRW Inc. (TRW) in accordance with the requirements of the California Regional Water Quality Control Board-Los Angeles Region (LARWQCB).

1.1 Site Background

The Monadnock facility has been used to fabricate fasteners and electronic hardware since 1965. TRW was the owner and operator of the facility from 1968 to 1980. Previous manufacturing processes used at the facility included degreasing, heat treating, and metal plating. Volatile organic compounds (VOCs) and metals associated with these processes have been detected in groundwater beneath the facility. Additional information regarding the site history are provided in the site audit report (McLaren, 1990).

1.2 Hydrogeologic Conditions

The first occurrence of groundwater beneath the site and vicinity is about 30 feet below ground surface within fine-grained materials consisting primarily of silty clay and silty to clayey sand. A coarser grained, gravelly sand occurs below a depth of about 85 feet. Six monitoring wells and the onsite extraction well (MW-2) are completed in the fine-grained deposits to depths between 45 and 60 feet (Table 1). One monitoring well (MW-11) extends into the lower gravelly sand and is completed to a depth of 97 feet. Additional information regarding the site hydrogeologic conditions is presented in the site investigation and groundwater treatment system report prepared by ID Environmental Associates (IDEA, 1995).

1.3 Groundwater Monitoring Program

Four monitoring wells and the extraction well are located onsite, and three monitoring wells are located offsite, as shown on Figure 2. The groundwater monitoring program for the site, which is summarized in Table 1, includes semiannual water-level monitoring and sampling of all seven monitoring wells and the extraction well. Groundwater samples are analyzed for halogenated volatile organics by EPA Method 8010, total chromium and cadmium by EPA Method 6010B, and total cyanide by EPA Method 335.2.

1.4 Groundwater Remediation System

A groundwater remediation system was implemented at the site in November 1995 utilizing shallow well MW-2 for extraction. Further details regarding the system are provided in Section 4.0.

2.0 GROUNDWATER MONITORING ACTIVITIES

2.1 Project Activities During Current Monitoring Period

No additional site investigation or well installation was conducted during this monitoring period.

2.2 Groundwater Monitoring, Sampling, and Analyses

TRW personnel conducted the August 1999 monitoring event. Water levels were measured in seven of the eight wells on August 3, 1999. Groundwater samples were collected from seven of the eight wells on August 4, 1999. Well MW-1 was not sampled because the well casing has been damaged. TRW's standard field procedures are contained in Appendix A along with copies of the water-level measurement and groundwater purging logs.

3.0 RESULTS

3.1 Water-Level Elevations

Historic water-level elevation data for all monitoring wells are presented in Table 2. The historic data include the measured depths to groundwater and the calculated water-level elevations recorded for each well since June 1994. Potentiometric surface contours generated using the August 1999 water-level elevation data are presented on Figure 2. Hydrographs of water levels versus time in three representative wells located on and downgradient of the site (MW-2, MW-7, and MW-12) are presented on Figure 3.

The August 1999 water-level data indicate that the water table occurs at a depth of about 33 to 34 feet, which represents a decline of about 1 to 2 feet since the February 1999 monitoring event. Water levels have historically occurred at depths ranging from about 30 to 34 feet and are currently at the lowest levels recorded. The direction of groundwater flow in the shallow interval continues to be to the west-southwest at an average horizontal hydraulic gradient of about 0.009, which is greater than that observed during previous monitoring events.

A vertical hydraulic gradient in the downward direction exists, as indicated by a water-level elevation difference of nearly 1.5 feet, between the completion intervals of shallow well MW-8 and deeper well MW-11. A downward vertical gradient has been observed during previous monitoring events, but the magnitude has been less than one foot.

3.2 Groundwater Analytical Results

Results of the August 1999 groundwater analyses, in addition to historic results for previous monitoring events, are presented in Table 3. Total VOC isoconcentration contours were generated using the August 1999 analytical results and are shown on Figure 4. Hydrographs of

VOC concentrations vs. time in three representative wells located on and downgradient of the site (MW-2, MW-7, and MW-12) are presented on Figure 5. Copies of the analytical laboratory reports and chain-of-custody forms are contained in Appendix B.

The August 1999 analytical results indicate that the plume of impacted groundwater beneath the site is oriented in a southwesterly direction, similar to the direction of groundwater flow. The axis of the plume is through the area of onsite well MW-2 and offsite well MW-12. The plume is limited in lateral extent, as crossgradient well MW-3 is not impacted, and crossgradient well MW-8 exhibits an appreciably lower concentration of total VOCs, relative to wells MW-2 and MW-12. VOC concentrations attenuate with depth, as deeper well MW-11 exhibits appreciably lower VOC concentrations than nearby shallow wells MW-2 and MW-7. The primary VOCs in the plume consist of TCE, 1,1-DCE, and PCE.

Historical concentration trends indicate that VOC levels onsite have declined substantially since monitoring began in July 1986. Concentrations remained relatively stable from 1995 through 1998, while the groundwater remediation system was in operation, although a temporary increase occurred in early 1998. Following shutdown of the system in June 1998, VOC concentrations onsite declined to the lowest levels historically recorded in February 1999. Concentrations onsite increased in August 1999 to the levels previously observed in Fall 1998 (August/September), but still remain below the levels observed prior to system shutdown. VOC concentrations in offsite well MW-12, which was installed in 1995, have fluctuated appreciably and are currently near the lower end of the historical range. The hydrographs of VOC concentrations versus time in wells MW-2, MW-7, and MW-12 demonstrate this trend (Figure 5).

Historic metals and cyanide results indicate that chromium and cyanide have exceeded MCLs during previous monitoring events. However, these impacts have been observed primarily in well MW-2. Concentrations of both compounds have declined substantially since the mid 1990s and are currently below the MCLs.

3.3 QA/QC Results

Laboratory results for the August 1999 monitoring event were reviewed in accordance with U.S. Environmental Protection Agency (EPA) guidelines for data validation (National Functional Guidelines for Organic Data Review, June 1991). The data validation process consisted of reviewing the laboratory results for the following parameters: 1) completeness of the data package, 2) compliance with EPA-required holding times, 3) surrogate recovery results for each well sample, 4) agreement of dilution factors with reported detection limits, 5) presence or absence of analytes in the equipment, trip, and method blanks, 6) percent recovery and relative percent difference (RPD) results for matrix spike and matrix spike duplicate (MS/MSD) analyses, and 7) percent recovery results for laboratory control samples (LCS).

Results of the data validation indicated that the laboratory data package was complete, no analysis holding times were exceeded, surrogate recovery results for each well sample were within acceptable limits, and reported detection limits were consistent with the sample dilution factors. VOCs were not detected in the trip blank. The laboratory method blank results indicate that no detectable concentrations of VOCs, cadmium, chromium, or cyanide were present. The results of the Laboratory Control Samples (LCSs) indicate that all percent recoveries for VOCs, cadmium, and chromium were within acceptable limits. In addition, the results of the MS/MSD pairs for VOCs and metals all indicated percent recoveries and Relative Percent Differences (RPDs) within acceptable limits. No LCS or MS/MSD results for cyanide were available. RPDs for the following analytes in the duplicate samples were within acceptable limits: chloroform 13%, 1,1-dichloroethane 8%, 1,2-dichloroethane 15%, 1,1-dichloroethene 27%, cis-1,2-dichloroethene 13%, tetrachloroethene 18%, 1,1,2-trichloroethane 11%, trichloroethene 12%, chromium 40%.

4.0 GROUNDWATER REMEDIATION SYSTEM

The onsite groundwater remediation system is a pump-and-treat system utilizing shallow well MW-2. Extracted groundwater is treated onsite using carbon adsorption and ion exchange units, and is discharged to the onsite storm-drain system under a National Pollution Discharge Elimination System (NPDES) Permit (Permit No. CAD000048934).

The system began operation in November 1995 and operated continuously until June 1998, when well MW-2 sustained damage to the wellhead during site construction activities. The system has been out of service since that time. The system operates at an average flow rate of about 0.6 gallons per minute, and has extracted a total of about 627,000 gallons of groundwater since its startup in 1995. Approximately 2.3 pounds of VOCs were removed from the extracted groundwater.

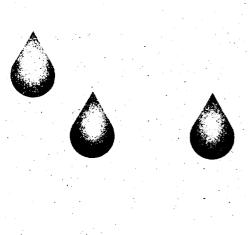
Additional information regarding the groundwater system are presented in the site investigation and groundwater treatment system report prepared by ID Environmental Associates (IDEA, 1995).

5.0 REFERENCES

IDEA (Id Environmental Associates). 1995. Report of Monitoring Well Installation and Implementation of a Groundwater Remediation System, Monadnock Company Facility, 18301 Arenth Avenue, City of Industry, California. December.

McLaren. 1990. Site Audit of The Monadnock Company at 18301 East Arenth Avenue, City of Industry, California. February.

U.S. Environmental Protection Agency (EPA) 1991. National Functional Guidelines for Organic Data Review. June.





TABLES

- Well Completions and Sampling Information Historical Water-Level Elevation Measurements Historical Groundwater Analytical Results
- 2
- 3

TABLE 1
WELL COMPLETIONS AND SAMPLING INFORMATION

Well Number	Screen Interval (feet bgs)	Total Depth (feet bgs)	Top of Casing Elevation	Sampling Schedule (annual quarters)	EPA Test Methods
MW-1	29-49	49	412.68	1 st and 3 rd	8010 6010B 335.2
MW-2	25-45	45	408.01	1 st and 3 rd	8010 6010B 335.2
MW-3	24-44	44	408.52	1 st and 3 rd	8010 6010B 335.2
MW-4	20-60	60	412.95	1 st and 3 rd	8010 6010B 335.2
MW-7	26-56	56	409.16	1 st and 3 rd	8010 6010B 335.2
MW-8	26-56	56	409.00	1 st and 3 rd	8010 6010B 335.2
MW-11	77-97	97	408.93	1 st and 3 rd	8010 6010B 335.2
MW-12	19-49	49	406.91	1 st and 3 rd	8010 6010B 335.2

bgs - below ground surface

TABLE 2
HISTORICAL WATER-LEVEL ELEVATION MEASUREMENTS

	T	Depth to Water	Top of Casing	Water Surface
Well	Date	(feet below	Elevation (a)	Elevation (a)
Number	Measured	top of casing)	(feet, MSL)	(feet, MSL)
MW-1	Jun-94	32.27	412.68	380.41
101 00 - 1	Aug-94	32.49	412.00	380.41
	Mar-95	31.82		380.86
		31.55		381.13
	Aug-95	31.55	1	1
	Feb-96			380.11 379.98
	Aug-96	32.70		
	Feb-97	32.13		380.55
į	Aug-97	32.61		380.07
	Feb-98	32.73		379.95
)	Aug-98	NM		NA
	Feb-99	33.26		379.42
ACT 2	Aug-99	NM 20.25	400.01	NA
MW-2	Jun-94	30.25	408.01	377.76
	Aug-94	30.55	- I	377.46
(Mar-95	29.73		378.28
	Aug-95	29.84		378.17
Ì	Feb-96	NM		NA
	Aug-96	NM		NA
	Feb-97	NM		NA.
	Aug-97	NM		NA
	Feb-98	NM 20.00		NA 250 12
	Sep-98*	29.88		378.13
	Feb-99	31.15		376.86
NOV. 2	Aug-99	32.99	100.53	375.02
MW-3	Jun-94	30.21	408.52	378.31
	Aug-94	30.74		377.78
	Mar-95	29.86		378.66
	Aug-95	29.94		378.58
	Feb-96	30.89 31.05		377.63
	Aug-96			377.47
	Feb-97	30.39		378.13
}	Aug-97	31.00		377.52
	Feb-98	30.94		377.58
	Aug-98	29.20		379.32
	Feb-99	31.35		377.17
MW-4	Aug-99	33.21	412.05	375.31
IVI W -4	Jun-94	32.80	412.95	380.15
	Aug-94 Mar-95	32.99 32.28		379.96
]				380.67
	Aug-95	32.04 33.05		380.91
	Feb-96			379.90
	Aug-96	33.17		379.78
	Feb-97	32.57		380.38
	Aug-97	33.10		379.85
1	Feb-98	33.23		379.72

TABLE 2
HISTORICAL WATER-LEVEL ELEVATION MEASUREMENTS

		Depth to Water	Top of Casing	Water Surface
Well	Date	(feet below	Elevation (a)	Elevation (a)
Number	Measured	top of casing)	(feet, MSL)	(feet, MSL)
	Aug-98	31.05		381.90
	Feb-99	33.35		379.60
	Aug-99	34.43		378.52
MW-7	Jun-94	31.35	409.16	377.81
	Aug-94	31.71		377.45
	Mar-95	31.03		378.13
	Aug-95	30.98		378.18
	Feb-96	32.06		377.10
	Aug-96	32.11		377.05
	Feb-97	31.41		377.75
	Aug-97	32.15		377.01
	Feb-98	31.92		377.24
	Aug-98	30.25		378.91
	Feb-99	32.40		376.76
	Aug-99	34.20		374.96
MW-8	Jun-94	31.25	409.00	377.75
	Aug-94	31.54		377.46
	Mar-95	30.95		378.05
	Aug-95	30.75		378.25
	Feb-96	31.66		377.34
	Aug-96	31.78		377.22
	Feb-97	31.20		377.80
	Aug-97	31.72		377.28
	Feb-98	31.77		377.23
	Aug-98	29.95		379.05
	Feb-99	32.20		376.80
	Aug-99	33.40	<u> </u>	375.60
MW-11	Jun-94	31.59	408.93	377.34
	Aug-94	32.07		376.86
	Mar-95	31.26		377.67
	Aug-95	31.28		377.65
	Feb-96	32.13		376.80
	Aug-96	32.35		376.58
	Feb-97	31.65		377.28
	Aug-97	32.30		376.63
	Feb-98	32.25		376.68
	Aug-98 Feb-99	30.40		378.53
	Aug-99	32.95 34.78		375.98
MW-12	Aug-99 Aug-95	30.50	406.91	374.15 376.41
141 44 - 17	Feb-96	30.30	400.91	376.41
	Aug-96	30.70	ŀ	375.96
	Feb-97	30.93		375.96
	Aug-97	31.23		375.68
	Feb-98	31.23		375.81
	1.00-20	J1.10	<u></u>	3/3.01

TABLE 2

HISTORICAL WATER-LEVEL ELEVATION MEASUREMENTS

		Depth to Water	Top of Casing	Water Surface
Well	Date	(feet below	Elevation (a)	Elevation (a)
Number	Measured	top of casing)	(feet, MSL)	(feet, MSL)
	Aug-98 Feb-99 Aug-99	29.78 32.00 33.77		377.13 374.91 373.14

⁽a) - Elevations relative to mean sea level (MSL)
NM - Not Measured
NA - Not Available
* - Water level measured on September 29, 1998.

TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS

Well	1.1.1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	CFM	DFM	PCE	TCE	Cadmium	Chromium	Cyanide
Number	(µg/l)	(μg/l)	(µg/l)	(μg/l)	(µg/l)	(µg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(mg/l)
Drinking	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(r-g-)	(1.8-7	(7-8-7	(1-8-7	(1-8-7)	(1-8-7	(1-8-7	(PB-7	(FB-7	(1-8-7	(
Water	200	32	5	6	0.5	100¹	NE	5	5	10	50	0.22
Standard	200	32			0.5	100	112	,		10	1 30	0.2
MW-1	 							 		 	 	
Jul-86	<25	NA	NA	NA	NA	NA	ND	<25	<25	NA	NA I	NA
Sep-86	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA I	NA
Nov-86	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA.	ND	NA	NA	NA	NA NA	NA
Mar-87	NA	NA	NA .	NA	NA	NA	ND	NA NA	NA	NA	NA	NA
Sep-87	NA	NA NA	NA ·	NA	NA -	NA	ND	NA ·	NA	NA	NA	NA
Feb-88	NA	NA	NA	NA	NA 1	NA	ND	NA	NA	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	ND	ND	ND	NA NA	NA	NA
Jun-89	ND	NA	NA	ND	NA	NA	ND	ND	ND	NA	NA	NA
Jan-90	ND	NA	NA	ND	NA	NA	ND	1.3	ND	NA	NA	NA
Jun-94	<1	<1	<1	<1	<1	<1	ND	<1	<1	NA	NA .	NA
Aug-94	<1	<1	<1	<1	<1	< <u> </u>	ND	<1	<1	<1	7.7	< 0.01
Mar-95	<1	</td <td><1 <1</td> <td><<u> </u></td> <td><!--</td--><td><1</td><td>ND</td><td><1</td><td><1</td><td><5</td><td><10</td><td><0.01</td></td>	<1 <1	< <u> </u>	</td <td><1</td> <td>ND</td> <td><1</td> <td><1</td> <td><5</td> <td><10</td> <td><0.01</td>	<1	ND	<1	<1	<5	<10	<0.01
Aug-95 Feb-96	<1 <1	<1 <1	<1 <1	1.5 <1	<1 <1	<1 <1	ND ND	<1	<1 <1	<5 <5	<10 <10	<0.1 <0.2
Aug-96	<1	<1 <1	<1 <1	<1 <1	<1	<1 <1	ND ND	<1 <1	<1	<5	<10	< 0.2
Feb-97	<1	<1 <1	<1	<1	<1	<1	ND ND	<1	<1	<5	<10	<0.01
Aug-97	<1	<1	<i< td=""><td><1</td><td><1</td><td><1</td><td>ND</td><td><1</td><td><1</td><td><5</td><td><10</td><td><0.01</td></i<>	<1	<1	<1	ND	<1	<1	<5	<10	<0.01
Feb-98	<1	<i>i</i>	<1	<1	<1	<1	ND	1.06	<1	<5	<10	< 0.01
Aug-98	NS	NS I	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Feb-99	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-2												
Jul-86	380	NA	NA	NA	NA	NA	ND	310	710	NA	NA	NA
Sep-86	180	NA	NA	NA	NA	NA	ND	600	560	NA	NA	NA
Nov-86	350	NA	NA	NA	NA	NA	ND	770	710	NA	NA I	NA
Feb-87	77	NA	NA	NA	NA	NA	ND	190	620	NA	NA	NA
Mar-87	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA.	NA	NA
Sep-87	12	NA	NA	NA	NA	NA	ND	102	182	NA	NA	NA
Feb-88	25	NA	NA	NA	NA	NA	ND	78	102	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	ND	70	120	NA	NA NA	NA
Jun-89	ND	NA	NA	180	NA	NA	ND	320	270	NA	NA	NA
Jan-90	7	NA	NA	840	NA	NA	ND	410	460	NA	NA NA	NA
Jun-94	<1 <1	21 19	10 8.6	120	3.3	2.4	ND	130	590	NA .	NA I	NA 0.57
Aug-94 Mar-95	<1	17.5	8.6 8.3	160 176	3.4 4.1	1.3 2.5	ND ND	100 102	390 330	<1 <5	162 206	<0.01
Mar-95 Aug-95	<1	17.5 <}	5.8	82	4.1	2.5 2.1	ND ND	102	170	<5 <5	206 164	<0.01 1.82
Feb-96	<2.5	3.5	<2.5	98	<2.5	<2.1 <2.5	ND ND	69	200	<5	85.6	1.60
Aug-96	<1	5.3	3.6	95	<1 <1	1.1	ND	53	220	<5 <5	60.8	0.25
Aug-96 Dup	<1	5.5	3.7	97	1.2	1.2	ND	54	220	NA.	NA	NA
Feb-97	<1	4.7	2.2	70	1.2	<1	ND	51.8	220	<5	43.4	0.693

mongwmon.xls

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11/29/1999

TABLE 3

HISTORICAL GROUNDWATER ANALYTICAL RESULTS

Well	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	CFM	DFM	PCE	TCE	Cadmium	Chromium	Cyanide
Number	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(mg/l)
Drinking					<u> </u>			<u> </u>	<u> </u>			
Water	200	32	5	6	0.5	100 ¹	NE	5	5	10	50	0.22
Standard	200			Ŭ	0.5	100	112			^~		0.2
Aug-97	<5	<5	<5	160	<5	<5	ND	79	260	<5	42	0.16
Feb-98	<1	6.76	5.65	325	2.89	2.1	ND	152	456	<5	47	0.363
Sep-98*	<0.5	2.9	2.1	89	1.1	< 0.5	<0.5	48	190	<5	79	0.420
Feb-99	<0.5	1.2	0.7	26	<1	<0.5	<0.5	14	61	<5	47**	0.180
Aug-99	<0.5	3.2	2.1	77	0.8	1	<0.5	25	140	<0.5	35	0.180
MW-3												
Jul-86	<5	NA	NA	NA	NA	NA	ND	<5	<5	NA	NA	NA
Sep-86	NA	NA	NA	NA	NA	NA	ND I	NA	NA	NA	NA	NA
Nov-86	6	NA	NA	NA	NA	NA	ND	100	4	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Мат-87	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Sep-87	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Feb-88	2	NA	NA	NA	NA	NA	ND	6.2	2.6	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA
Jun-89	1	NA .	NA	ND	NA	NA	ND	6	2	NA	NA	NA
Jan-90	ND	NA	NA	ND	NA	NA	ND	ND	2	NA	NA	NA
Jun-94	<1	<1	<1	<1	<1	<1	ND	<1	<1	NA	NA	NA
Aug-94	<1	<1	<1 <1	<1 <1	<1	<1	ND	<1	<1	1.4	14.3	<0.01
Mar-95	<1 <1	<1 <1	<1	1.4	<1 <1	<1 <1	ND ND	<1 <1	<1	<5 -5	23.9	<0.01 <0.1
Aug-95 Feb-96	<1	<1 <1	<1	1. 4 <1	<1	<1	ND ND	<1	<1 <1	<5 <5	<10 <10	<0.1
Aug-96	\ <1 \	<1 <1	<1	<1	<1	<1	ND ND	<i< th=""><th><1</th><th><5 <5</th><th><10</th><th><0.01</th></i<>	<1	<5 <5	<10	<0.01
Feb-97	<1	<1	<1	<1	<1	<1	ND	<1	<1	<5	<10	<0.01
Aug-97	<1	<1	<1	<1	<1	<1	ND	<1	<1	<5	<10	< 0.01
Feb-98	<1	<1	<1	<1	<1	<1	ND	<1	<1	<5	<10	<0.01
Aug-98	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1	3.52	<0.05
Feb-99	<0.5	<0.5	<0.5	<0.5	<1	<0.5	< 0.5	<0.5	< 0.5	<5	<5	< 0.05
Aug-99	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<2	< 0.05
MW-4												
Jul-86	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Sep-86	NA .	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Nov-86	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Feb-87	NA	NA	NA	NA	NA NA	NA	ND	NA	NA	NA	NA NA	NA
Mar-87	0.5	NA	NA	NA	NA	NA	ND	1.6	1	NA	NA	NA
Sep-87	NA .	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA NA	NA
Feb-88	NA NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Jan-89	NA NA	NA NA	NA	NA NA	NA	NA	ND	NA	NA	NA NA	NA .	NA
Jun-89 Jan-90	NA ND	NA NA	NA NA	NA	NA NA	NA	ND	NA 10	NA	NA NA	NA NA	NA
Jan-90 Jun-94	UN <1	NA <1	NA <1	ND <1	NA	NA	ND ND	1.9	ND	NA NA	NA NA	NA NA
	<1	<1 <1	<1	<1	<1 <1	<1	ND	<1	<1	NA	NA 6.4	NA
Aug-94	<u> </u>	<u> </u>	<u> </u>	<1	<1	<1	ND	<1	<1	<1	6.4	<0.01

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TABLE 3

HISTORICAL GROUNDWATER ANALYTICAL RESULTS

Well	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	CFM	DFM	PCE	TCE	Cadmium	Chromium	Cyanide
Number	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μ g/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(mg/l)
Drinking												
Water	200	32	5	6	0.5	100¹	NE	5	5	10	50	0.2^2
Standard						100				1		
Маг-95	<1	<1	<1	<1	<1	<1	ND	<1	<1	<5	<10	2.67
Aug-95	<1	</th <th><1</th> <th>1.1</th> <th><1</th> <th><1</th> <th>ND</th> <th><1</th> <th><1</th> <th><5</th> <th><10</th> <th><0.1</th>	<1	1.1	<1	<1	ND	<1	<1	<5	<10	<0.1
Feb-96	<1	<1	<1	<1	<1	<1	ND	<1	<1	<5	<10	<0.2
Aug-96	<1	<1	<1	<1	<1	<1	ND	<1	<1	<5	<10	< 0.01
Feb-97	<1	<1	<1	<1	<1	<1	ND	<1	<1	<5	<10	< 0.01
Aug-97	<1	<1	<1	<1	<1	<1	ND	1.2	<1	<5 .c	<10	<0.01
Feb-98	<1	<1 <0.5	<1 <0.5	<1 <0.5	<1 <1	<1 <0.5	ND	1.33 <0.5	<1	<5	<10 5.89	<0.01 <0.05
Aug-98 Feb-99	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<0.5 <0.5	<1	<0.5 <0.5	1.8 1.8	0.6	<0.5 <0.5	<1 <5	3.89	< 0.05
Aug-99	<0.5	<0.5	<0.5	<0.5 <0.5	<0.5	<0.5	2.2	0.6	<0.5 <0.5	<0.5	<2	<0.05
MW-7	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	~0.5	~0.5	, .v.J	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	~0.5	2.2	0.0	۷۰.5	νο.σ		_ <0.02
Jul-86	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA .	NA	NA
Sep-86	NA NA	NA	NA NA	NA	NA NA	NA	ND	NA NA	NA NA	NA NA	NA NA	NA
Nov-86	NA NA	NA	NA	NA	NA	NA	ND	NA.	NA	NA.	NA	NA
Feb-87	NA	NA	NA	NA	NA NA	NA	ND	NA	NA	NA	N.A	NA
Mar-87	48	NA	NA	NA	NA	NA	ND .	81	456	NA	NA	NA
Sep-87	56	NA	NA	NA	NA	NA	ND I	93	200	NA	NA	NA
Feb-88	8.2	NA	NA	NA	NA	NA	ND	74	152	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	ND	150	200	NA	NA	NA
Jun-89	50	NA	NA	42	NA	NA	ND	60	66	NA	NA	NA
Jan-90	1.6	NA	NA	440	NA	NA	ND	160	400	NA	NA NA	NA
Jun-94	<1	2.8	<1	40	<1	1.8	ND	42	280	NA	NA 116	NA 0.76
Aug-94	<1	17	6.2	140	1.7	2.4	ND ND	60	310 145	1.3	115 49.6	0.76 0.14
Mar-95	<1 <1	4.5 <1	<1 <1	66 43	<1 <1	<1 <1	ND	28 1.9	130	<5 <5	26.5	0.14
Aug-95 Feb-96	<1	<1 <1	<1 <1	36	<1	<1	ND ND	1.9	120	<5	36.3	0.023
Aug-96	<1	4.5	1.3	46	<1	<1	ND	20	87	<5	38.2	0.30
Feb-97	<1	3.6	<1	41	<1	<1	ND	31	170	<5	35	0.126
Feb-97 Dup	<i< th=""><th>4.1</th><th>1.1</th><th>47</th><th>-i</th><th><1</th><th>ND</th><th>35</th><th>180</th><th>NA NA</th><th>NA NA</th><th>NA</th></i<>	4.1	1.1	47	-i	<1	ND	35	180	NA NA	NA NA	NA
Aug-97	<1	<1	<1	43	<1	<1	ND	18	105	<5	17.4	< 0.01
Aug-97 Dup	<5	<5	<5	45	<5	<5	ND	18	150	NA	NA	NA
Feb-98	<1	5.89	2.54	172	1.02	1.24	ND	57.3	222	<5	19.6	0.353
Aug-98	<0.5	<0.5	0.8	53	<1	< 0.5	ND	16	170	<1	31.2	<0.05
Aug-98 Dup	<0.5	<0.5	0.7	60	<1	<0.5	<0.5	18	180	NA	NA	NA
Feb-99	<0.5	1.1	0.6	24	<1	<0.5	<0.5	9	82	<5	46	<0.05
Aug-99	<0.5	1.6	1.1	78	0.8	0.7	<0.5	17	150	<0.5	28	0.06
MW-8	,,											
Jul-86	NA NA	NA NA	NA NA	NA NA	NA	NA	ND	NA NA	NA NA	NA NA	NA NA	NA
Sep-86 Nov-86	NA NA	NA NA	NA NA	NA NA	NA NA	NA	ND	NA NA	NA NA	NA NA	NA NA	NA NA
	NA NA	NA NA			NA NA	NA NA	ND ND	NA NA	NA NA	NA NA	NA NA	NA NA
Feb-87	NA	NA	NA	NA	NA NA	NA	ND	NA	NA	NA	NA	NA

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TABLE 3
HISTORICAL GROUNDWATER ANALYTICAL RESULTS

Well	1,1,1-TCA	1,1,2-TCA	1,1-DCA	1,1-DCE	1,2-DCA	CFM	DFM	PCE	TCE	Cadmium	Chromium	Cyanide
Number	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(mg/l)
Drinking									<u> </u>			
Water	200	32	5	6	0.5	100 ¹	NE	5	5	10	50	0.2^2
Standard	200	32	J	ľ	""	100	``~	~	_	1		0.2
Mar-87	32	NA	NA	NA	NA	NA	ND	110	180	NA	NA	NA
Sep-87	3	NA	NA	NA	NA	NA	ND	27	47	NA	NA	NA
Feb-88	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA
Jan-89	ND	NA	NA	NA	NA	NA	ND	80	90	NA	NA	NA
Jun-89	30	NA	NA	180	NA	NA	ND	320	400	NA	NA	NA
Jan-90	ND	NA	NA	100	NA	NA	ND	56	160	NA	NA	NA
Jun-94	<1	<1	<1	16	<1	<1	ND	6.8	34	NA	NA	NA
Aug-94	<1	<1	9.4	<1	<1	<1	ND	5.5	22	4.8	135	< 0.01
Маг-95	<1	<1	<1	11.7	<1	<1	ND	3.3	18.8	<5	20.4	< 0.01
Aug-95	<1	<1	<1	7.9	<1	<1	ND	<1	19	<5	14.4	< 0.1
Feb-96	<1	<1	<i< th=""><th>17</th><th><1</th><th><1</th><th>ND</th><th>11</th><th>35</th><th><5</th><th>20.5</th><th><0.2</th></i<>	17	<1	<1	ND	11	35	<5	20.5	<0.2
Aug-96	<1	<1	1.6	16	<1	<1	ND	11	39	<5	<10	< 0.01
Feb-97	<1	<1	<1	8.3	<1	<1	ND	12	33	<5	<10	< 0.01
Aug-97	<1	<1	1.4	14	<1	<1	ND	12	32	<5	<10	< 0.01
Feb-98	<1	<1	2.26	31.1	<1	<1	ND	23	52	<5	<10	< 0.01
Aug-98	<0.5	<0.5	<0.5	2.6	<1	<0.5	<0.5	2.3	8.5	4.21	5.22	< 0.05
Feb-99	<0.5	<0.5	0.6	6.2	<1	<0.5	0.6	4.7	15	<5	5	< 0.05
Aug-99	<0.5	0.9	2.4	35	0.6	0.7	<0.5	15	80	<0.5	12	< 0.05
Aug-99 Dup	<0.5	1	2.6	46	0.7	0.8	0.6	18	90	<0.5	18	<0.05
MW-11	,,	.,,	214	27.4		X1.4] ,,,			27.4	
Jul-86	NA I	NA	NA	NA	NA NA	NA	ND	NA	NA	NA NA	NA NA	NA
Sep-86	NA NA	NA NA	NA NA	NA	NA	NA	ND	NA	NA	NA	NA NA	NA
Nov-86	NA NA	NA NA	NA	NA	NA NA	NA	ND	NA	NA	NA NA	NA I	NA
Feb-87	NA NA	NA NA	NA NA	NA	NA NA	NA	ND	NA NA	NA NA	NA	NA NA	NA
Mar-87	NA NA	NA NA	NA NA	NA NA	NA NA	NA	ND ND	NA NA	NA	NA NA	NA NA	NA NA
Sep-87 Feb-88	ND ND	NA NA	NA NA	NA NA	NA NA	NA	ND ND	NA ND	NA 26	NA NA	NA NA	NA NA
Jan-89	ND ND		NA NA	NA NA		NA NA	ND ND	200	20	NA NA	NA NA	
Jan-89 Jun-89	ND ND	NA NA	NA NA	50	NA NA	NA NA	ND ND	10	270	NA NA	NA I	NA NA
Jun-89 Jan-90	ND ND	NA NA	NA I	231	NA NA	NA NA	ND ND	5.5	50	NA NA	NA NA	NA NA
Jun-94	ND <1	<1	NA <1	231 <1	NA <1	1.8	ND	7	86	NA NA	NA NA	NA NA
Aug-94	<1	<1	16	<1	<1	1.0 <1	ND	4.7	49	NA <1	13	<0.01
Mar-95	<1	<1	<1	20.3	<1	<1	ND ND	4.1	59.6	<5	13.1	< 0.01
Aug-95	<1	<1	<1	12	<1	<1	ND	<1 <1	43	<5 <5	13.1	<0.01
Feb-96	<1	<1 <1	<1 <1	12	<1	<1	ND	3.8	40	<5	<10	<0.01
Aug-96	<1	<1	<1	12	<1	<1 <1	ND	4.8	45	<5 <5	<10	<0.01
Feb-97	<1	<1	<1	<1 <1	<1	<1 <1	ND	4.7	47	<5	<10	<0.01
Aug-97	<1	<1	<1	9.3	<1	<1	ND	4.3	30	<5 <5	<10	<0.01
Feb-98	<1	<1	<1	23.6	<1	<1	ND	10.6	63.1	<5	<10	<0.01
Feb-98 Dup	<1	<1	<i< th=""><th>21.2</th><th><1</th><th><1</th><th>ND</th><th>10.0</th><th>59.4</th><th>NA NA</th><th>NA NA</th><th>NA</th></i<>	21.2	<1	<1	ND	10.0	59.4	NA NA	NA NA	NA
Aug-98	<0.5	<0.5	<0.5	9.1	<1	< 0.5	1.4	2.7	37	<1	4.15	< 0.05

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TABLE 3

HISTORICAL GROUNDWATER ANALYTICAL RESULTS

Well		1,1,2-TCA		,	1,2-DCA	CFM	DFM	PCE	TCE	Cadmium	Chromium	Cyanide
Number	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(µg/l)	(μg/l)	(μg/l)	(μg/l)	(μg/l)	(mg/l)
Drinking			1	_			l					
Water	200	32	5	6	0.5	100¹	NE	5	5	10	50	0.2^2
Standard								1				
Feb-99	<0.5	<0.5	<0.5	8.3	<1	<0.5	<0.5	3	38	<5	<5	<0.05
Aug-99	<0.5	<0.5	<0.5	16	<0.5	< 0.5	<0.5	4.2	62	<0.5	3.4	< 0.05
MW-12												
Aug-95	<1	<1	6.7	250	7	4.1	ND	13	540	<5	25.6	0.502
Feb-96	<5	<5	<5	230	<5	<5	ND	60	380	<5	37.5	0.38
Feb-96 Dup	<5	<5	<5	210	<5	<5	ND	57	360	NA	N.A	NA
Aug-96	<1	9.2	5.2	210	4.5	2.9	ND	65	330	<5	30.4	0.37
Feb-97	<1	2.4	1.2	66	1.1	1.1	ND	39	220	<5	25.7	0.051
Aug-97	<5	<5	<5	120	<5	<5	ND	60	270	<5	32.9	0.11
Feb-98	<1	8.91	4.97	227	5.04	3.4	ND	60.7	489	<5	59.2	0.111
Aug-98	<0.5	2.4	1.5	110	1.8	0.6	<0.5	21	190	<1	30.7	0.16
Feb-99	<0.5	6.4	3.9	300	2.7	2.2	<0.5	47	520	<5	23**	0.19
Feb-99 Dup	<0.5	6.8	3.6	260	2.8	2.1	<0.5	48	460	<5	NA	0.07
Aug-99	<0.5	4.9	3.2	170	2.7	1.9	<0.5	30	280	<0.5	25	<0.05

Drinking water standards are Maximum Contaminant Levels as established by the California Department of Health Services.

- 1 Drinking water standard is for total trihalomethanes.
- 2 Drinking water standard is the Maximum Contaminant Level as established by the U.S. Environmental Protection Agency.
- NA Not Analyzed
- ND Not Detected
- NE Not Established
- < Not detected at the detection limit shown.
- * Well sampled on September 29, 1998, as well required repair before sampling could occur.
- ** Well resampled for dissolved chromium on May 7, 1999.

1,1,1-TCA - 1,1,1-Trichloroethane

CFM - Chloroform

1,1,2-TCA - 1,1,2-Trichloroethane

DFM - Dichlordifluoromethane

1,1-DCA - 1,1-Dichloroethane

PCE - Tetrachloroethene

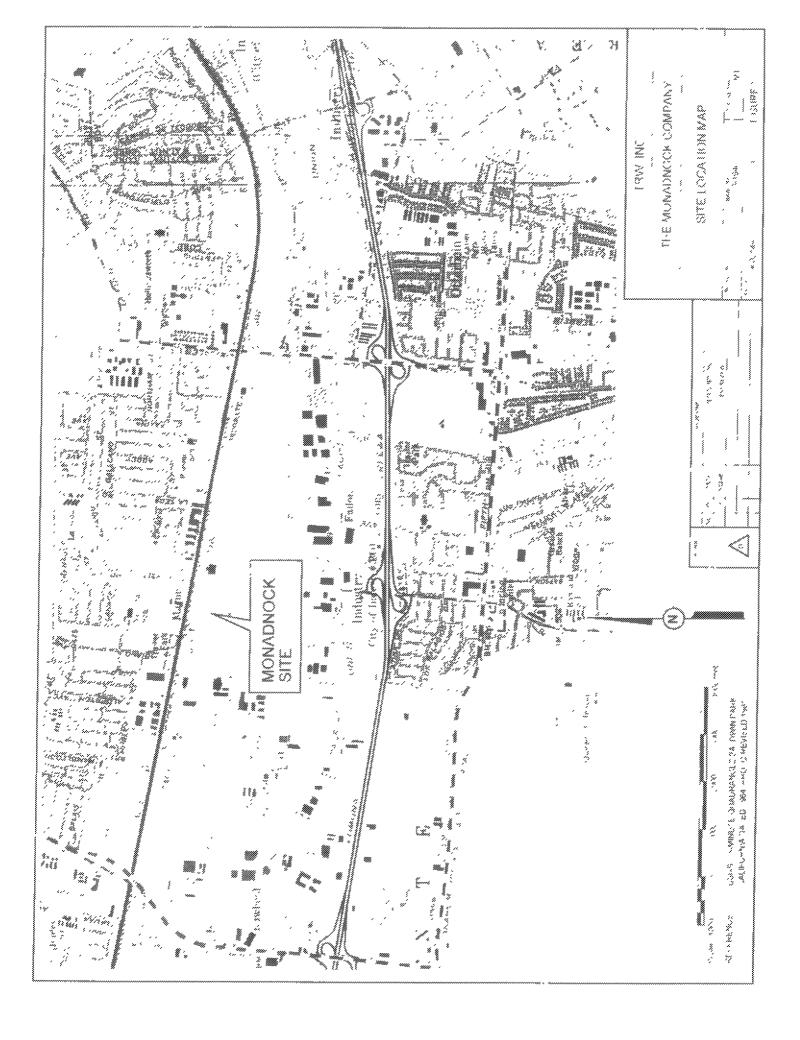
1,1-DCE - 1,1-Dichloroethene

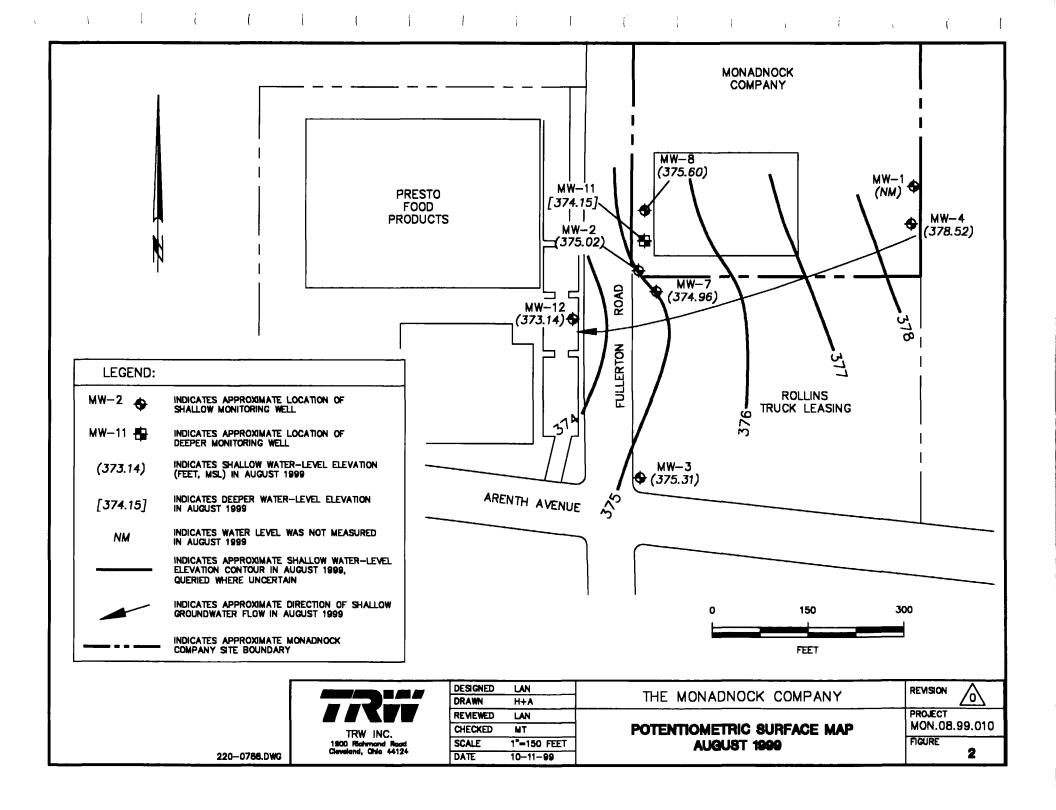
TCE - Trichloroethene

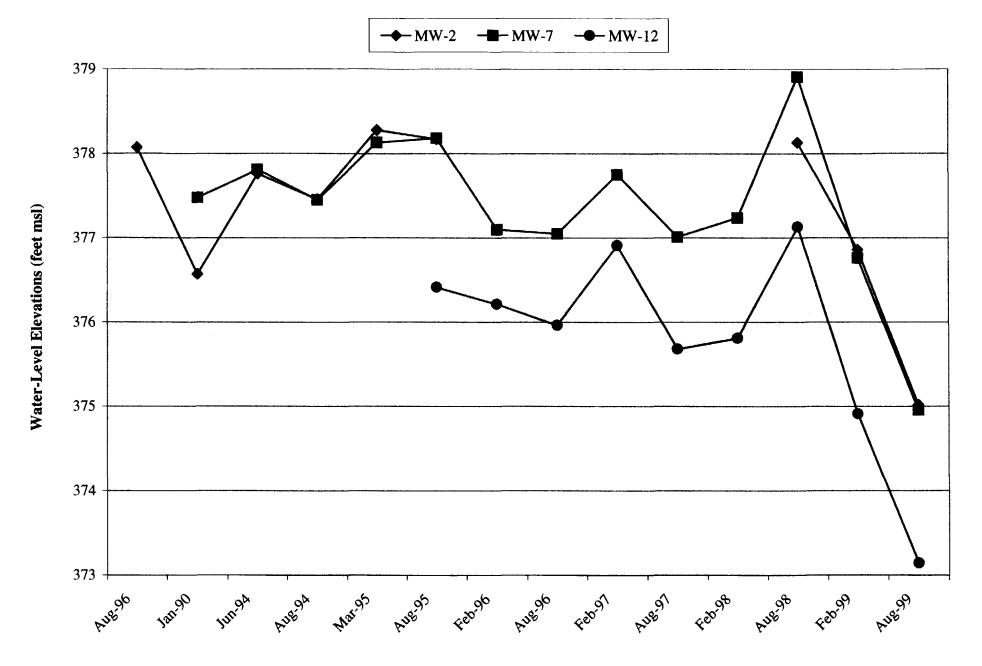
1,2-DCA - 1,2-Dichloroethane

FIGURES

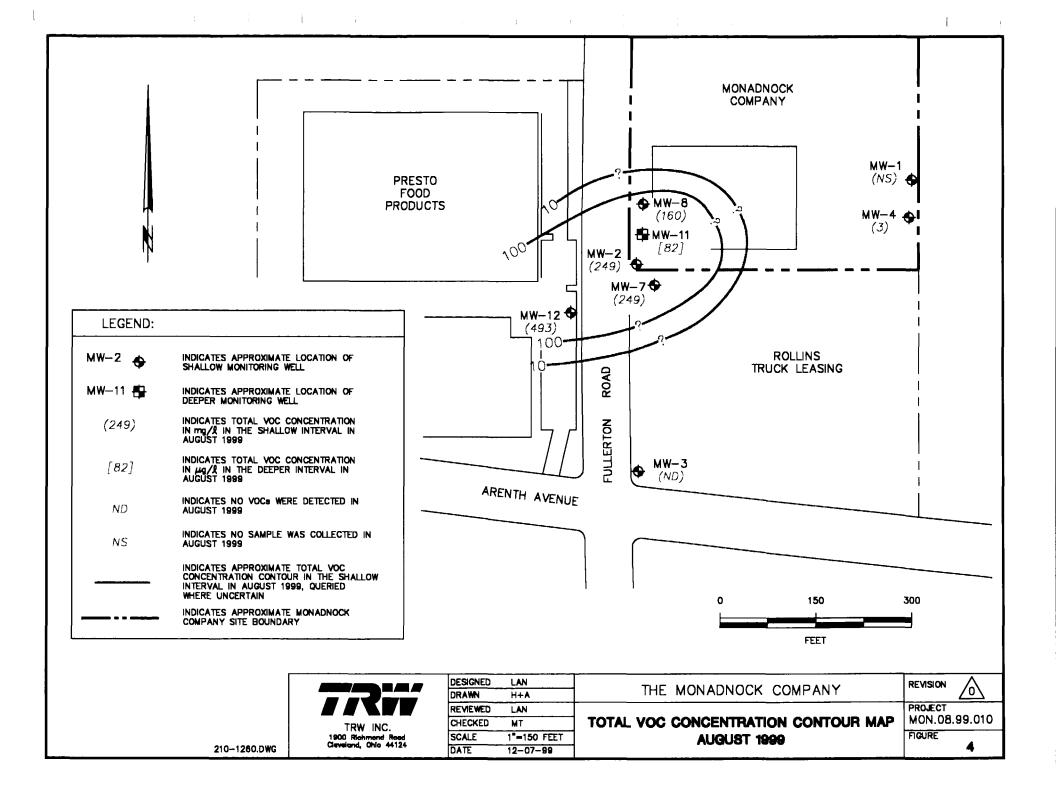
- Site Location Map 1
- $\dot{\mathbf{2}}$
- Potentiometric Surface Map August 1999 Water-Level Elevations vs. Time Wells MW-2, MW-7 and MW-12
- 4 Total VOC Concentration Contour Map - August 1999
- 5 Total VOC Concentrations vs Time - Wells MW-2, MW-7 and MW-12

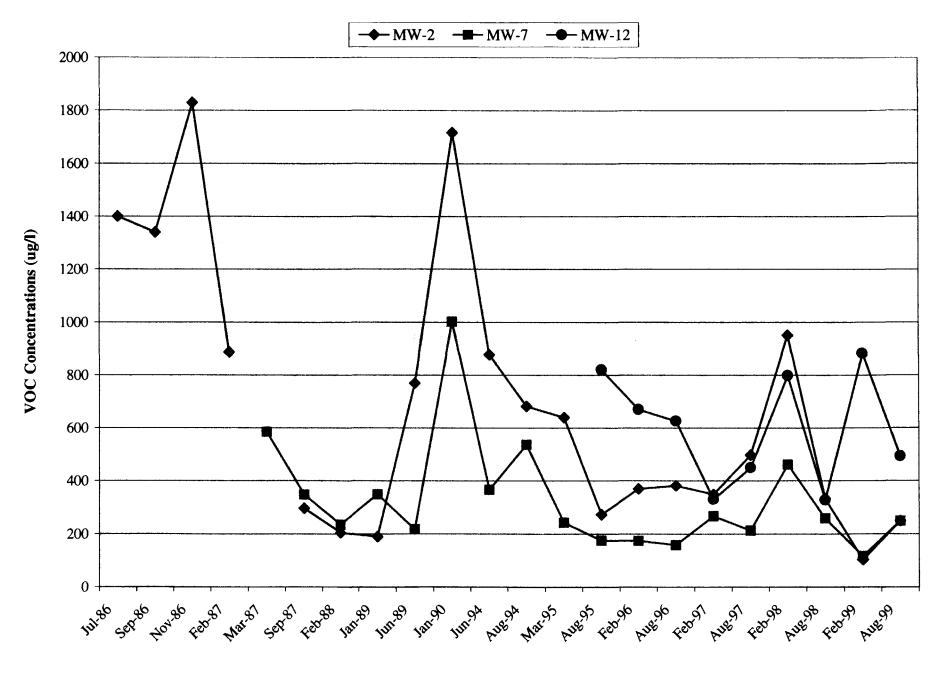






	Monadnock Company Site, City of Industry, CA	Project: MON.08.99.010
TRW	Water-Level Elevation vs. Time - Wells MW-2, MW-7 and MW-12	FIGURE 3





	Monadnock Company Site, City of Industry, CA	Project: MON.08.99.010
// // ///	Total VOC Concentrations vs. Time - Wells MW-2, MW-7 and MW-12	FIGURE 5

APPENDIX A

STANDARD FIELD PROCEDURES AND WATER PURGING LOGS

TRW's WELL MONITORING AND SAMPLING FIELD PROCEDURES

Prior to purging the wells, static groundwater levels and total well depths are measured in all wells. A clean electronic sounder is used to measure the depth to water below the top of each well casing to the nearest 0.01 foot. Where previous data indicate the presence or likely presence, an interface probe is used to monitor the presence and thickness of light or dense non-aqueous phase liquid (LNAPL/DNAPL).

Each monitoring well is purged a minimum of three well casing volumes prior to sampling. Well purging is accomplished using either dedicated polyethylene bailers, 1.75" or 3.5" diameter PVC bailers, 1.5" disposable HDPE bailers, dedicated bladder pumps, or 2" Grundfos pumps, depending on the characteristics of each well and/or the site. Measurements of pH, specific conductivity, and temperature are recorded at periodic intervals during the purging of all wells. Water-level measurement, well purging, and well sampling data are recorded for each well on water purging logs. Copies of the logs follow these procedures.

Groundwater samples are carefully collected from each well after the water level has recovered to at least 80 percent of the static level. Groundwater samples are collected from the monitoring wells and piezometers using specific well-dedicated Teflon, PVC or polyethylene bailers, or 1.5" disposable HDPE bailers. The dedicated bailers (where used) are suspended in the well from new nylon rope or a monofilament line. Groundwater samples are collected from the sample ports for extraction wells and eductor pipes. Groundwater extraction wells are typically sampled from a dedicated sampling port on the discharge line.

The samples are slowly transferred to new sample containers supplied by the analytical laboratory for each specific analysis. Volatile organic analysis vials are filled in a manner such that no headspace exists. Each sample is logged on a chain-of-custody form that accompanies the samples. The samples are then stored in a clean portable ice chest and cooled with ice until delivery to the analytical laboratory.

Monitoring equipment is decontaminated between use in each well using a non-phosphate detergent wash followed by two deionized water rinses. Wastewater, generated from decontamination activities, is collected in 55-gallon drums. The drummed wastewater is then stored onsite for later disposal or treatment.

Field quality assurance/quality control (QA/QC) procedures are employed during each monitoring event to document that the sampling results meet accepted QA/QC standards. The QA/QC samples collected in the field include blind duplicates, trip blanks, and equipment blanks. Additional QA/QC procedures employed in the field include sequencing the sampling in such a manner that the wells with the lowest levels of contamination are sampled prior to those with the highest levels.

GROUNDWATER MONITORING WATER - LEVEL MEASUREMENTS

Project: Manadnock Date: 8-3-99 Collected By: Frank R.

			
Well Number	Well Diameter	Water level	Total Depth
MW-1	4"	Well casing	is clamaged 45, 90
MW - 3	4 "	33. 21	45, 90
MW - 4	4"	34.43	48,60
nw-8	4"	33.40	51.22
MW- 11	4"	34. 78	96,60
MW - 2	4"	32.99	44.65
MW - 7	4"	34.20	56.52
mw - 12	4"	33.77	49.45
			· · · · · · · · · · · · · · · · · · ·

Project Name: Monadnock					Date:		
Well No.:_	MW-12	Loca	tion:		Collected	by: Frank	
Well Purgir Decontamir Total Depth	ng Method:_nation Method: (ft.):4	3,5" od: 1 Wash 9,45 urged: 2"	PVC & - 3 Rinses H ₂ O Level ((0.16 gal./ft	Equipmen ft.): 33	77 Heig 5 gal./ft.) 5"	ht of Water Coli	X No
Time	Purged (gallons)	Temp.	mΩ	pН		Notes	
1000	10	74.8	13.62	7.81 7,44	Water	slightly 	cloucly
1019	30	72.9	12.74		/1		· · · · · · · · · · · · · · · · · · ·
!							
		•					
					·		
* Well San	npling Meth	od:		 	Casing Volume	s:	
		Calibra	tion Recor	d, Observa	ations, and N	otes	
* Ph Meter * Ambient	r Calibration Temp. <u> </u>	n: Zeroed to <u>> ° (Cle</u> ar	: <u>Z.O</u> Şanny, Fog	S ggy, Partly C	panned to:	/0.0 Drizzle, Rain,	Snow, Wind
			_	-			
* Notes:							
							

purging.log

Project Nai	ne: <i>M0</i>	nadoc	k		Date:	8.3.99
Well No.:_	nw-	3_Loca		Collected by: Frank		
Well Purgi	ng Method:_ nation Metho	3,5" / od: 1 Wash	PVC A	<i>Pailec</i> Equipmen	nt Deconed Prio	r to Use: Yes X No
Total Depti	h (ft.): <u>4</u>	5,90	H ₂ O Level ((ft.): <u>33</u>	Z [Heig	ht of Water Column (ft.): 12.68
Casing vol	ames to be p	urged: 2" vol. x <u>0 (</u>	(0.16 gal./ft 65 gal	.) 4" (0.6 !/ft. x/_	5 gal./ft.) 5" 2,68 ft. =	(1.02 gal./ft.) 6" (1.47 gal./ft.) gal.
Time	Purged (gallons)	Temp. °F	mΩ	pН		Notes
1100	49	73,2	15.60	7.88	Water	cy at 26 gal.
1109	78	71,6	15.60	7.39		
1117	27	71.8	15165	7,37	Well d	ry at 26' gal.
		<u> </u>		·		<i>'</i>
						
					· 	
	-	<u> </u>			<u> </u>	•
ļ — — · · · · · · · · · · · · · · · · ·						
\ <u></u>	ļ					
						
	 					
L	<u> </u>				<u> </u>	
			8	No. of	Casing Volume	s:
	mpling Meth					
* Deconta	mination Me	thod:	Wash -	3 rivse	:5	
		Calibra	tion Recor	d, Observ	ations, and No	otes
* Ph Mete	r Calibration	: Zeroed to	:7	5	Spanned to: 10	
* Ambient	Temp <u>&</u>	Clear	Sunny, Fog	ggy, Partly (Cloudy, Cloudy,	Drizzle, Rain, Snow, Wind
* Decon V	Vater Change	ed Out After	This Well:	Yes		No
* Notes:_			 -			
						
				-		
purging.log						

Project Nan	ne:	nadno	le		Date	e:8 · .	3 99 Ilected by: <i>Fran</i>	
Well No.:_	MW-	4Loca	tion:			Co	llected by: Fran	<u>k</u>
Decontamir Total Depth	nation Method (ft.):	od: <u>1 Wash</u> <i>(8.60</i> urged: 2"	H ₂ O Level ((0.16 gal./ft	_ Equipmen (ft.): <u> </u>	<i>1,43</i> 55 gal./ft.)	leight of Wat 5" (1.02 gal	Yes	41,17
Time	Purged (gallons)	Temp.	mΩ	pН		No		
1153	10	75,4	15.91	7.13	Water	Riown	& cloudy	
1202	20	74,8	15.78	7.15	(1		/1	
1210	30	74.8	15.55	7.17			a cloudy	
					ļ			_
						•		
								\neg
				<u> </u>				
<u> </u>		<u> </u>	<u> </u>		<u> </u>			
 Well Sar 	rged (gallon	nod:			Casing Vol	umes:		
* Decontai	mination Me		Jash -			3 Nr. 4		
			ation Recor	-	·			
): 7				D : G	
							Rain, Snow, Wind	
					•			
* Notes:						****		
								

Project Na	me: Moi	radnoce	k		Date: 8 5-99
Well No.:_	nw-	∠ Loca	tion:		Collected by: Founk
Decontami Total Dept	nation Methorships (ft.): 5 umes to be p	od: <u>1 Wash</u> /, <u>2 2</u> urged: 2"	H ₂ O Level ((0.16 gal./ft	_ Equipmen (ft.): <u>3 </u>	t Deconed Prior to Use: Yes No Height of Water Column (ft.): 17.82 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.) 1.82 ft. = 34,75 gal.
Time	Purged (gallons)	Temp. °F	mΩ	рН	Notes
1245	12	80.4	16.17	7.25	
1257	24	-		7.22	
1308	36	78.5	16.14	7.20	
	 	<u> </u>			
		ļ			
* Well Sa	rged (gallon mpling Meth	nod:			Casing Volumes:
		Calibra	ation Recor	rd, Observa	ations, and Notes
* Ph Mete	er Calibration	n: Zeroed to	o:7	S	panned to:
					loudy, Cloudy, Drizzle, Rain, Snow, Wind
* Decon \	water Chang	ed Out Arte	r inis well:	Y es	No
* Notes:_					

purging.log

Project Name: Monadnock			2	Date: 8 3 99			
					Collected by: Frank		
Decontamir Total Depth	ation Method (ft.):	od: <u>1 Wash</u> 7 <i>6.60</i> urged: 2"	H₂O Level (0.16 gal./ft	_ Equipmen (ft.):	nt Deconed Prior to Use: Yes <u>× No</u> 1.78 Height of Water Column (ft.): 6/,82 5 gal./ft.) 5" (1.02 gal./ft.) 6" (1.47 gal./ft.) 1.82 ft. = 120.55 gal.		
Time	Purged (gallons)	Temp. °F	mΩ	pН	Notes		
1413	40	79.6	12.89	7,49	Water slightly cloudy		
1432	80	80-6	13.22	7.40	water cloudly Brown		
1451	120	77.9	13.02	7.43	Water slightly cloudy water cloudy Brown		
* Well San	npling Meth	od:			Casing Volumes:		
		Calibra	ition Recor	d, Observa	ations, and Notes		
* Ambient * Decon W * Notes:	Temp. <u>90</u> ater Change	7 ° Clear	This Well:	ggy, Partly C	Spanned to: 10 Cloudy, Cloudy, Drizzle, Rain, Snow, Wind		

Project Nan	Project Name: <u>Monadnock</u>			Date: 8-4-99		
Well No.:_	Well No.: MW-Z Location:				Collected by: Frank	
Well Purgin Decontamin Total Depth	ng Method:_nation Methon (ft.): umes to be p	3.5" od: 1 Wash 4.65 urged: 2"	- 3 Rinses H ₂ O Level (0.16 gal./ft	Equipmer Equipmer (ft.):32 t.) 4" (0.6	nt Deconed Prior to Use: Yes <u>&</u> No	
Time	Purged (gallons)	Temp. °F	mΩ	pН	Notes	
08/2	8	69,3	13.76	7.70	Water very cloudy	
11814	16	70.5	14.37	7.52	Water very cloudy Well dry at 12 Gal.	
	24				7	
	<u> </u>					
	 	<u> </u>			·	
			 			
						
L			ļ	<u> </u>		
	rged (gallon			No. of	Casing Volumes:	
			- Was 4 -	- 2 c.n.	260	
2000						
		Canbra	ation Reco	ra, Observ	rations, and Notes	
* Ph Mete	r Calibration	n: Zeroed to	o:7	7	Spanned to: / O	
* Ambien	t Temp. <u>70</u>	° Cie	r, Sunny, Fo	ggy, Partly	Cloudy, Cloudy, Drizzle, Rain, Snow, Wind	
* Decon V	Vater Chang	ed Out Afte	r This Well:	Yes	No	
* Notes:_						
			-	· · · · · · · · · · · · · · · · · · ·	·	
	· · · · · ·			···.		

purging.log

Project Name: Monaclinocle Well No.: NW-7 Location:				Date: 8 - 49				
Well No.:_	MW-	7Loca	tion:			Co	llected by: Fiant	<u>k</u>
Decontamir Total Depth	nation Methon (ft.): 5	od: 1 Wash 6, 5 Z urged: 2"	H ₂ O Level ((0.16 gal./ft	_ Equipmer ft.): <i> </i>	nt Deconed P 1 20 He 5 gal./ft.)	eight of Wat 5" (1.02 gal	Yes ≪ No ter Column (ft.): ∂ /ft.) 6" (1.47 gal ?, § 2 gal.	22,32
Time	Purged (gallons)	Temp.	mΩ	pН		No		
0910	<i>15</i> 30	71.9	14.70	7.45	Water	very	cloudy	
0922	45		13,94		E(- <u> </u>		
						•		
							· · · · · · · · · · · · · · · · · · ·	
						······································		_
* Total Pur* Well San* Decontar	npling Meth	od:	Wash -		Casing Volum	nes:		
		Calibra	tion Recor	d, Observ	ations, and	Notes		
* Ph Meter				gov Partly (Spanned to:	dy Driggle	Rain, Snow, Wind	
* Decon W	ater Change	ed Out After	This Well:	Yes		uy, Diizzie, No	Kam, Snow, Wind	
* Notes:			- -					· ·
								

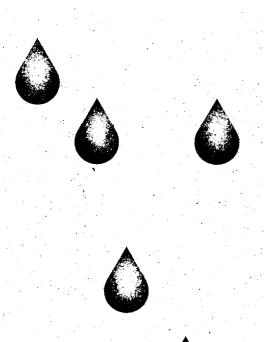
purging.log

GROUNDWATER MONITORING ANALYTICAL QC LOG

Project:	Date:	Collected By:
----------	-------	---------------

	W-II M-m-h-m	77:	00.51-
Sample Number	Well Number	Time	QC Sample
m0080499-1	mw-12	0.840	
mo080499-2	MW-12	0840	
m0080499-3	mw-12	0840	
TRIP BLANK			ac
mo080499-4	m w-3	0915	
mo086499-5	m w·3	0915	
mo080499.4	MW-3	0915	
mc 680499-7	mw-4	1015	
m0080499-8	mw-4	1015	
mo 080499-9	MW-4	1015	
M0080499-10	MW-8	1050	Austicate
M0080499-11	nw-8	1050	Aplicate Applicate
M0082499-12	MW-8	1050	Applicate
MO080499-13	MW-8	1120	
MOUL 0499-14	MW-8	1120	
MOU80499-15	MW-8	1120	
MO080499-16	MW-11	1145	
MOU80499-17	MW-11	1145	
MOUSO 499-16	NW-11	1145	
M0080499-19	nw-2	1200	
MA180499-20	mw - 2	1200	
M0080499-21	MW- 2	1200	
M1080499- 22	MW- 7	1235	
11111 80494 23	MW- 7	1235	
MOU 40 449- 211	MW- 7	1235	

Decon Water changed out after well number:	
Observations/Notes:	
•	





ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY FORMS

KCO E/2499



Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: Or

Orion Environmental

3450 E. Spring Ste. 212

Long Beach, CA 90806

Date Sampled:

08/04/99

Date Received: Job Number:

08/04/99 15262

Project: Monadnock

CASE NARRATIVE

The following information applies to samples which were received on 08/04/99:

The samples were received at the laboratory chilled and sample containers were intact.

The Cyanide analysis was subcontracted to ELAP Lab #1230. The original report is attached to, but is not part of, this report.

Unless otherwise noted below, the Quality Control acceptance criteria were met for all samples for every analysis requested.

Report approved by:

Robert R. Clark, Ph.D. Laboratory Director

ELAP # 1184

DL: Detection Limit -- The lowest level at which the compound can reliably be detected under normal laboratory conditions.

ND: Not Detected -- The compound was analyzed for but was not found to be present at or above the detection limit.

NA: Not Analyzed -- Per client request, this analyte was not on the list of compounds to be analyzed for.



Cadmium By GFAA

Client:

Orion Environmental

Project:

Monadnock

Job No.: Matrix:

15262 Water

Analyst:

RVJ/RLB

Date Sampled:

08/04/99

Date Received:

08/04/99

Date Digested:

08/05/99

Date Analyzed: 08/09/99

Batch Number: 6010W1285

Method Number: 7131

	Detection Limit	Cadmium
Sample ID	ug/L	ug/L
Method Blank	05 3 3 3 5 5 5	ND NO
M0080499-2 MW-12	0.5	ND
M0080499-5 mw-3	0.5	ND
M0080499-8 mW-4	0.5	ND
M0080499-11 MW-9 Dup	0.5	ND ND
M0080499-14 MW-8	0.5	ND
M0080499-17 WW-11	0.5	e de ND
M0080499-20 MW-2	0.5	ND
M0080499-23 WW-7	0.5	ND
。 图 4 第 48 图 48 编辑 图 28 第		terseti i sed e e
		()

(800) 798-9336

QC Sample Report - Metals

Matrix: Water Batch #: 6010W1285

Batch Accuracy Results

Cadmium	Compound	Sample ID: Laboratory Control Sample
1.0	Spike Concentration mg/L	rol Sample
98	% Recovery LCS	
75 - 125	Acceptance Limits % Recovery	
Pass	Pass/Fail	

Analytical Notes:

Batch
Precision
Results

Cadmium	Compound	MS/MSD Sample ID: 15263-
0.985	Spike Sample Recovery mg/L	3-1
0.960	Spike Duplicate Recovery mg/L	
3%	Relative Percent Difference (RPD)	
20%	Upper Control Limit RPD	
Pass	Pass/Fail	

Analytical Notes:

MS: Matrix Spike Sample MSD: Matrix Spike Duplicate



Chromium By GFAA

Client:

Orion Environmental

Project:

Monadnock

Job No.: Matrix:

15262 Water

Analyst:

RVJ/RLB

Date Sampled:

08/04/99

Date Received:

08/04/99

Date Digested:

08/05/99

Date Analyzed: 08/06-07/99

Batch Number: 6010W1285

Method Number: 7191

	Detection Limit	Chromium
Sample ID	ug/L	ug/L
Method Blank	2.0	BEET BEET NOTE OF
M0080499-2 mw-12	2.0	25
M0080499-5 mw-3	2.0	ND
M0080499-8 MW-4	2.0	ND
M0080499-11 MW-8 Dup	2.0	,
M0080499-14 MW-8	2.0	12
M0080499-17 mw-11	2.0	3.4
M0080499-20 MW-Z	2.0	35
M0080499-23 MW-7	2.0	28



QC Sample Report - Metals

Matrix: Water Batch #: 6010W1285

Batch Accuracy Results

Chromium	Compound	Sample ID: Laboratory Control Sample
1.0	Spike Concentration mg/L	Control Sampl
102	% Recovery LCS	ē
75 - 125	Acceptance Limits % Recovery	
Pass	Pass/Fail	

|--|

Batch Precision Results

Chromium 1.	Compound Spike Sample	MS/MSD Sample ID: 15263-1
1.058	Recovery mg/L	
1.024	Spike Duplicate Recovery mg/L	
3%	Relative Percent Difference (RPD)	
20%	Upper Control Limit RPD	
Pass	Pass/Fail	

MS: Matrix Spike Sample MSD: Matrix Spike Duplicate



EPA 8260 - Volatile Organics

Client:

Orion Environmental

Project: Job No.: Monadnock

15262

Matrix:

Water Analyst: GR

Date Sampled: 08/04/99

Date Received: 08/04/99

Date Analyzed: 08/05-10/99

Batch Number: 8260W1793

MW-12 MW-3 MW-4 MW-8-DUP

	Sample ID:	Biank	M0080499-1	M0080499-4	M0080499-7	M0080499-10	M0080499-13
Compounds	DL	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
Acetone	50	ND	ND	ND	ND	ND	ND
Benzene	0.5	ND	ND	ND	ND	ND	ND
Bromobenzene	1.0	ND	ND	ND	ND	ND	ND
Bromochloromethane	1.0	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND	ND	ND	ND
Bromoform	0.5	ND	ND	ND	ND	ND	ND
Bromomethane	0.5	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	10	ND	ND	ND	ND	ND	ND
n-Butylbenzene	0.5	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	0.5	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	0.5	ND	ND	ND	ND	ND	ND
Carbon disulfide	10	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.5	ND	ND	ND	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND	ND	ND	ND
Chloroethane	0.5	ND	ND	ND	ND	ND	ND
Chloroform	0.5	ND	1.9	ND	ND	8.0	0.7
Chloromethane	0.5	ND	ND	ND	ND	ND	ND
2-Chiorotoluene	0.5	ND	ND	ŅD	ND	ND	ND
4-Chlorotoluene	0.5	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.5	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.5	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropa	ane 10	ND	ND	ND	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.5	ND	ND	ND	2.2	0.6	ND
1,1-Dichloroethane	0.5	ND	3.2	ND	ND	2.6	2.4
1,2-Dichloroethane	0.5	ND	2.7	ND	ND	0.7	0.6
1,1-Dichloroethene	0.5	ND	170	ND	ND	46	35
cis-1,2-Dichloroethene	0.5	ND	ND	ND	ND	0.8	0.7
trans-1,2-Dichloroethene	0.5	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.5	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	and the second of the second	ND	ND	ND	ND	ND	ND

(800) 798-9336

EPA 8260 - Volatile Organics

Client:

Orion Environmental

Project:

Monadnock

Job No.:

15262

Matrix:

Water

Analyst: GR Date Sampled:

08/04/99

Date Received:

Date Analyzed:

08/04/99

08/05-10/99

Batch Number:

8260W1793

MW-12	MM-3	WM-4	WM-8-DUP	MW-8
M0080499-1	M0080499-4	M0080499-7	M0080499-10	M0080499-1

	Sample ID:	Blank	M0080499-1	M0080499-4	M0080499-7	M0080499-10	M0080499-13
Compounds	DL	μg/L	μg/L	μg/L	μg/L_	μ g/L	μg/L
Ethylbenzene	0.5	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND	ND	ND	ND
2-Hexanone	10	ND	ND	ND	ND	ND	ND
Isopropylbenzene	0.5	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	0.5	ND	ND	ND	ND	ND	ND
Methylene chloride	50	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	5.0	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl ether (MtE	3E) 1.0	ND	ND	ND	ND	ND	ND
Napthalene	1.0	ND	ND	ND	ND	ND	ND
n-Propylbenzene	0.5	ND	ND	ND	ND	ND	ND
Styrene	0.5	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	1.0	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.5	ND	30	ND	0.6	18	15
Toluene	0.5	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.5	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.5	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.5	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	4.9	ND	ND	1.0	0.9
Trichloroethene	0.5	ND	280	ND	ND	90	80
1,2,3-Trichloropropane	0.5	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.5	ND	ND	ND .	ND	ND	ND
Trichlorotrifluoroethane	5.0	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.5	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.5	ND	ND	ND	ND	ND	ND
Vinyl chloride	0.5	ND	ND	ND	ND	ND	ND
Xylenes (total)	1.5	ND	ND	ND	ND	ND	ND

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	Blank	M0080499-1	M0080499-4	M0080499-7	M0080499-10	M0080499-13
Dibromofluoromethane	108	103	108	103	102	104
Toluene-d8	100	101	106	102	100	101
Bromofluorobenzene	99	99	98	95	103	98

(800) 798-9336

EPA 8260 - Volatile Organics

Client:

Orion Environmental

Project: Job No.: Monadnock 15262

Matrix: Analyst:

Water

GR

Date Sampled: 08/04/99

Date Received: 08/04/99

Date Analyzed: 08/05-10/99

Batch Number: 8260W1793

MW-2 MW-7 11-WM

	Sample ID:	M0080499-16	M0080499-19	M0080499-22	TRIP BLAI	NK
Compounds	DL	μg/L	μg/L	μg/L	μg/L	
Acetone	50	ND	ND	ND	ND	And the second of the second o
Benzene	0.5	ND	ND	ND	ND	
Bromobenzene	1.0	ND	ND	ND	ND	
Bromochloromethane	1.0	ND	ND	ND	ND	
Bromodichloromethane	0.5	ND	ND	ND	ND	
Bromoform	0.5	ND	ND	ND	ND	
Bromomethane	0.5	ND	ND	ND	ND	
2-Butanone (MEK)	10	ND	ND	ND	ND	
n-Butylbenzene	0.5	ND	ND	ND	ND	
sec-Butylbenzene	0.5	ND	ND	ND	ND	
tert-Butylbenzene	0.5	ND	ND	ND	ND	
Carbon disulfide	10	ND	ND	ND	ND	
Carbon tetrachloride	0.5	ND	ND	ND	ND	
Chlorobenzene	0.5	ND	ND	ND	ND	
Chloroethane	0.5	ND	ND	ND	ND	
Chloroform	0.5	ND	1.0	0.7	ND	
Chloromethane	0.5	ND	ND	ND	ND	
2-Chlorotoluene	0.5	ND	ND	ND	ND	
4-Chlorotoluene	0.5	ND	ND	ND	ND	
Dibromochloromethane	0.5	ND	ND	ND	ND	
1,2-Dibromoethane	0.5	ND	ND	ND	ND	
1,2-Dibromo-3-chloroprop	ane 10	ND	ND	ND	ND	
Dibromomethane	0.5	ND	ND	ND	ND	i
1,2-Dichlorobenzene	0.5	ND	ND	ND	ND	
1,3-Dichlorobenzene	0.5	ND	ND	ND	ND	
1,4-Dichlorobenzene	0.5	ND	ND	ND	ND	
Dichlorodifluoromethane	0.5	ND	ND	ND	ND	
1,1-Dichloroethane	0.5	ND	2.1	1.1	ND	
1,2-Dichloroethane	0.5	ND	1.1	0.8	ND	
1,1-Dichloroethene	0.5	16	77	78	ND	
cis-1,2-Dichloroethene	0.5	ND	ND	ND	ND	;
trans-1,2-Dichloroethene	0.5	ND	ND	ND	ND	
1,2-Dichloropropane	0.5	ND	ND	ND	ND	
1,3-Dichloropropane	0.5	ND	ND	ND	ND	Barrier Branch Commence
2,2-Dichloropropane	0.5	ND	ND	ND	ND	
1,1-Dichloropropene	0.5	ND	ND	ND	ND	望起,一般想象,一点"
cis-1,3-Dichloropropene	0.5	ND	ND	ND	ND	
trans-1,3-Dichloropropene		ND	ND	ND	ND	



EPA 8260 - Volatile Organics

Client:

Orion Environmental

Project:

Monadnock

Job No.:

15262

Matrix: Analyst: Water GR

Date Sampled:

08/04/99

Date Received:

08/04/99

Date Analyzed:

08/05-10/99

Batch Number:

8260W1793

mW-7 mw-2 mW-11

	Sample ID:	M0080499-16	M0080499-19	M0080499-22	TRIP BLANK	
Compounds	DL	μg/L	μg/L	μg/L	μg/L	
Ethylbenzene	0.5	ND	ND	ND	ND	
Hexachlorobutadiene	0.5	ND	ND	ND	ND	
2-Hexanone	10	ND	ND	ND	ND	
Isopropylbenzene	0.5	ND	ND	ND	ND	
p-Isopropyltoluene	0.5	ND	ND	ND	ND	
Methylene chloride	50	ND	ND	ND	ND	
4-Methyl-2-pentanone	5.0	ND	ND	ND	ND	
Methyl-tert-butyl ether (MtB	E) 1.0	ND	ND	ND	ND	
Napthalene	1.0	ND	ND	ND	ND	
n-Propylbenzene	0.5	ND .	ND	ND	ND .	
Styrene	0.5	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	0.5	ND .	ND	ND	ND	
1,1,2,2-Tetrachloroethane	1.0	ND	ND	ND	ND	
Tetrachloroethene	0.5	4.2	25	17	ND	
Toluene	0.5	ND	ND	ND	ND	
1,2,3-Trichlorobenzene	0.5	ND	ND	ND	ND	
1,2,4-Trichlorobenzene	0.5	ND	ND	ND	ND	
1,1,1-Trichloroethane	0.5	ND	ND	ND	ND	
1,1,2-Trichloroethane	0.5	ND	3.2	1.6	ND	
Trichloroethene	0.5	62	140	150	ND	
1,2,3-Trichloropropane	0.5	ND	ND	ND	ND	
Trichlorofluoromethane	0.5	ND	ND	ND	ND	
Trichlorotrifluoroethane	5.0	ND	ND	ND	ND	
1,2,4-Trimethylbenzene	0.5	ND	ND	ND	ND	
1,3,5-Trimethylbenzene	0.5	ND	ND	ND	ND	
Vinyl chloride	0.5	ND	ND	ND	ND	
Xylenes (total)	1.5	ND	ND	ND	ND	

Surrogates (% recovery) Limits: 80 - 130

	Sample ID:	M0080499-16	M0080499-19	M0080499-22	TRIP BLANK	
Dibromofluoromethane		105	112	108	106	
Toluene-d8		102	102	101	102	
Bromofluorobenzene		96	101	93	96	



QC Sample Report - EPA Method 8260

Matrix: Water Batch #: 8260W1793

Batch Accuracy Results

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Analyte	Spike Concentration µg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
1,1-Dichloroethene	20	107	59 - 172	Pass
Benzene	20	110	66 - 142	Pass
Trichloroethene	20	107	71 - 137	Pass
Toluene	20	108	59 - 139	Pass
Chlorobenzene	20	108	60 - 133	Pass

Analytical Notes:

Batch Precision Results

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Analyte	Spike Sample Recovery μg/L	Spike Duplicate Recovery μg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
1,1-Dichloroethene	21.5	25.2	16%	22%	Pass
Benzene	22.1	25.7	15%	21%	Pass
Trichloroethene	21.4	25.3	17%	24%	Pass
Toluene	21.7	23.8	9%	21%	Pass
Chlorobenzene	21.3	22.9	7%	21%	Pass
MS: Matrix Spike Sample					

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MSD: Matrix Spike Sample

MSD: Matrix Spike Duplicate

Page 10 of 10



August 10, 1999

Jeff Betty Centrum Analytical Laboratories, Inc. 290 Tennessee Street Redlands, CA 92373

Subject: Calscience Work Order No.: 99-08-0135

Client Reference:

15262 / Monadnock

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 08/05/99 and analyzed in accordance with the attached chain-of-custody.

The results in this analytical report are limited to the samples tested and any reproduction of this report must be made in its entirety.

If you have any questions regarding this report, require sampling supplies or field services, or information on our analytical services, please feel free to call me at (714) 895-5494.

Sincerely,

Calscience Environmental

✓ Laboratories, Inc. Larry Lem

Project Manager

William H. Christensen Quality Assurance Manager



ANALYTICAL REPORT

Date Sampled:	08/04/99
Date Received:	08/05/99
Date Analyzed:	08/06/99
Work Order No.:	99-08-0135
Method:	EPA 335.2
Page 1 of 1	
	Date Received: Date Analyzed: Work Order No.: Method:

All concentrations are reported in mg/L (ppm).

Sample Number	Cyanide, Total Concentration	Reporting <u>Limit</u>
M0080499-3 mw - 12	ND	0.05
M0080499-6 mw-3	ND	0.05
M0080499-9 mu-4	ND	0.05
M0080499-12 mw-8 Dup	ND	0.05
M0080499-15 mw-8	ND	0.05
M0080499-18 mw-11	ND	0.05
M0080499-21 mw-2	0.18	0.05
M0080499-24 mw-7	0.06	0.05
Method Blank	ND	0.05

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.



290 TENNESSEE STREET REDLANDS, CA 92373

(909) 798-9336 • (800) 798-9336 FAX (909) 793-1559

											Ana	lyses	Req	uest	ed_			7:1		
Project No. Project Mar Project Mar Client Name (Company)	nager: bolm Welps	ler	Phone:	ON AC 304 -9440	DNOCK Fax: 304 S 233-944 Deach, C	-1 A .	8240 8010 524.2	3080: Pesticides PCBs Pest/PCB	sel Fuel Screen	oline 8020 Gas/BTEX		: 8270 625	CCAM) PP RCRA		S Conductivity COD	Flashpoint Fluoride Hex Chrome	16010			Turn-around time 24 Hr. RUSH* 48 Hr. RUSH* Normal TAT Requires prior approval, additional charges apply
Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date	Time	Sample	Site location	Containers: # and type	GCMS: 8260	8080: Pestic	8015M: Diesel	8015M: Gasoline	418.1 (TRPH)	Semivolatiles:	Metals: TTLC(CAM)	Lead Only	SST SOT Hq	Flashpoint F	3005	336.1		Remarks/ Special Instructions
1	M6080499-1	849	7	water	Monadnock	3.40ml	X													
2	M0080499-2				1	1-250											X			Fitered infield
3	m0080499-3					1-liter											Ľ	K		Filtered
4	M0080499-H					3-40ml	X													
5	m0080499-5					1-250											X			filtered
6	m0080499-6		<u> </u>			1-hiter												X		1
7	M0080499-7		<u> </u>			3-40ml	X		_							L.				
8	m0080499-8					1-250ml											X	_		Filtered
9	M0080499-9					Hiter					_						ļ Ļ	X		<u> </u>
10	m0080499-10	<u> </u>		$ \downarrow$	V	3-40ml	X													
Relinquished	y: (Sampley's Signature)		0ate 8.499	Time 13/5	Relinquished by:		Date 8	the	Time	:20		be con	•			•	ersoni	nel:		Sample Disposal
Registred by	ante		5/4/4n	Time /3 /5	Received by:		Date		Time		San	nples o							ļ	☐ Client will pick up
The delivery of samples and the signature on this chain of custody form					Relinquished by:		Date	-	Time		Custody seals? ☐ Yes 🕅 No All sample containers intact? 🛣 Yes ☐ No					ĺ	☐ Return to client			
	uthorization to perform the id Conditions set forth on t	•		ove under	Received for Laboratory by:		Date 6/4	49	Time	20	Þr	Courier	ם נ	IPS/F	ed Ex	_ -	land o	arried	 	☐ Lab disposal fee \$5
Laboratory I		DE			ION LIMITS CO	_									4	d -				Sample Locator No.
S	end Report t	ð: ——	Mo TI	BON.	PMB-955, 44	155	145	55 70	TO	RPA PA	ANC	E C	Bl LA	V D	> ~ ?0≤	745 ZV.	5 3_			F-4

Centrum Job #

Page 3 of 3

290 TENNESSEE STREET REDLANDS, CA 92373

(909) 798-9336 • (800) 798-9336 FAX (909) 793-1559

Chain of Custody Record

												Anal	yses	Req	uest	вd						
Project No.: Project Name:					المداد					e l	İ	ដ	1 1				ا ۾		ĺ			Turn-around time
Project Manager: Phone:				NAPI	PNOCK Fax:					Pest/PCB	ء	Gas/BTEX	1 1		RCRA		000 /	To To				☐ 24 Hr. RUSH*
										S P	Screen	ő	۱. ا	225			ctivity	lex C	0	01061		☐ _48 Hr. RUSH*
Client Name: (Company) TRW Address:					1 50 (8240 8010	PCB.	F. E.	8020		9 /	(¥		ondro	8	0/09/	30		Normal TAT
(Company) TRW Re				eden	ende Beach					ides		ogine		s: 82	3		၁	Fluori	/6		}	* Requires prior approval, additional charges apply
Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix				ainers: d type	GCMS 8260	8080: Pesticides	8015M: Diesel	8015M: Gasoline	418.1 (TRPH)	Semivolatiles: 8270 625	Metals: TTLC(CAM) PP	Lead Only	pH TDS TSS Conductivity	Flashpoint Fluoride Hex Chrome	300%	335.12		Remarks/ Special Instructions
11	m0080499-11	8499		haler	Mona	drack (1250)	2	Sin I											X			Filtered
12	mosso499-12	1				CI-Lifer	B	製			_	_								X		<u> </u>
13	m0080499-13					(3-4cm)	塩	re	X			_							. ,			
14	mco 80499-14						1-2	50_											X			Filtered
15	M0080499-15						1-2	ter												X		V
16	m0080499-14						3-4	oml	X													
17	m0080499-17						1-2	50											X			Filtered
18	M0080499-18.						1-L	ter						į						X		1
19	m0080499-19					i	3-4	Onl	X											Ĺ		
	m0080499-20	V		V		/	1-2	50				_							X			Filtered
Relinquished b	y: (Samplet's Signature)					Date 8/4	/gc	Time	ંજી	To be com			pleted by laboratory personnel:						Sample Disposal			
Min (thy 849 1345						Received by:					Time		Samples chilled? XYes C						i	☐ Client will pick up		
The delivery of samples and the signature on this chain of custody form						Relinquished by:					Time)	All sample containers intact? X Yes □ No							☐ Return to client		
constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.						Received for Laboratory by:				1	Time	Time Courler UPS/Fed Ex Hand carried					arried		☐ Lab disposal fee \$5			
Laboratory N	lotes:	10																	Sample Locator No.			
																						F-4

Centrum Job # 15265

Page 3 of 3

290 TENNESSEE STREET REDLANDS, CA 92373

(909) 798-9336 • (800) 798-9336 FAX (909) 793-1559

Chain of Custody Record

													Anal	/ses	Requ	este	d_					
Project No.: Project Name:					prock					PCB		Gas/BTEX			s		8	e Li				Turn-around time
Project Manager: Phone:					Fax:					PCBs Pest/PCB	Fuel Screen	O Gas.		625	PP RCRA		clivity	lex Chric	۵	3610		☐ 24 Hr. RUSH* ☐ 48 Hr. RUSH*
Client Name: Address:					ldress:							oline 8020					TDS TSS Conductivity COD	livoride	6010	13		Normal TAT * Requires prior approval, additional charges apply
Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location			Containers: # and type	GCM3 8260	8080: Pesticides	8015IM; Diesel	8015M: Gasoline	418.1 (TRPH)	Sernivolatiles:	Metals: TTLC(CAM)	Lead Only	PH TDS TS	Flashpoint Fluoride Hex Chrome	3005/	336.3		Remarks/ Special Instructions
21	m0080499-21	8499		hater	Mongo	Inock	1-Liter	3-40ml												X		filtered
12	moss499-22						3-4an		X					_]		\perp			_]			
23	m0080499-23						1-250												X			Filtered
24	m0080499-24						1-11-6	V												X		Filtered
25	TRIPBLANK	V		V	V	<i>!</i>	··	+40m1	X													
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Relinquished b	y: (Sampley's Signaturay) W SUU	Relinquished by:					8/4/31 /4			To be completed by laboratory personnel:					ry pe	el:		Sample Disposal				
Recorded py: Bully 8-49/13/5 Recorded py: Bully 8/4/2/13/5						Received by:					Date Time			Samples chilled? Yes No Custody seals? Yes X No					☐ Client will pick up			
The delivery of samples and the signature on this chain of custody form						Relinquished by:				Date			All sample containers intact? Yes D No						□ Return to client			
constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.						Received for Laboratory by;				Date Time 3/4/99 14:20			Courier UPS/Fed Ex Hand carried								☐ Lab disposal fee \$5	
Laboratory Notes:																						Sample Locator No.
																						F-4